

ESTTA Tracking number: **ESTTA455902**Filing date: **02/10/2012**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**Petition for Cancellation**

Notice is hereby given that the following party requests to cancel indicated registration.

**Petitioner Information**

Name	Houghton Mifflin Harcourt Publishing Company		
Entity	Corporation	Citizenship	Massachusetts
Address	222 Berkeley Street Boston, MA 02116 UNITED STATES		

Attorney information	Mary A. Donovan Donovan & Yee LLP 161 Avenue of the Americas Suite 1201 New York, NY 10013 UNITED STATES trademarks@yeellp.com, skickham@yeellp.com Phone:212-226-7700
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**Registrations Subject to Cancellation**

Registration No	4030323	Registration date	09/27/2011
Registrant	SINGAPOREMATH.COM INC. #225 404 Beaver Creek Road Oregon City, OR 97045 UNITED STATES		

**Goods/Services Subject to Cancellation**

Class 016. First Use: 2000/06/30 First Use In Commerce: 2000/06/30 All goods and services in the class are cancelled, namely: Educational publications, namely, educational learning cards, flash cards, activity cards, workbooks, textbooks, activity books, story books, puzzle books, printed puzzles, teacher guides, manuals, posters, educational card games and educational booklets in the field of mathematics
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**Grounds for Cancellation**

<i>Torres v. Cantine Torresella S.r.l. Fraud</i>	808 F.2d 46, 1 USPQ2d 1483 (Fed. Cir. 1986)		
Genericness	Trademark Act section 23		
Registration No	3866259	Registration date	10/26/2010
Registrant	SingaporeMath.com Inc. 404 Beaver Creek Road #225 Oregon City, OR 97045 UNITED STATES		

**Goods/Services Subject to Cancellation**

Class 016. First Use: 2002/01/01 First Use In Commerce: 2002/01/01 All goods and services in the class are cancelled, namely: Educational publications, namely, educational learning cards, flash cards, activity cards, workbooks, textbooks, activity books, story books, puzzle books, printed puzzles, teacher guides, manuals, posters, educational card games and
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educational booklets in the field of mathematics
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## Grounds for Cancellation

<i>Torres v. Cantine Torresella S.r.l.Fraud</i>	808 F.2d 46, 1 USPQ2d 1483 (Fed. Cir. 1986)
Genericness	Trademark Act section 23

Related Proceedings	SingaporeMath.com, Inc. v. Houghton Mifflin Harcourt Publishing Company, 11-cv-1522, United States District Court, District of Oregon
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Attachments	Petition for cancellation of SINGAPORE MATH and SINGAPOREMATH.COM (final).pdf ( 7 pages )(767451 bytes ) Exhibit 1 - Petition to Cancel.pdf ( 23 pages )(921794 bytes ) Exhibit 2 - Petition to Cancel.pdf ( 3 pages )(61521 bytes )
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## Certificate of Service

The undersigned hereby certifies that a copy of this paper has been served upon all parties, at their address record by First Class Mail on this date.

Signature	/sbkickham/
Name	Sarah B. Kickham
Date	02/10/2012

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

In re: Registration No. 4,030,323  
Mark: SINGAPORE MATH  
Issued: September 27, 2011

In re: Registration No. 3,866,259  
Mark: SINGAPOREMATH.COM  
Issued: October 26, 2010

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**HOUGHTON MIFFLIN HARCOURT**  
**PUBLISHING COMPANY,** :  
:  
**Petitioner,** : **CONSOLIDATED**  
:  
**v.** : **CANCELLATION NO.**  
:  
**SINGAPOREMATH.COM, INC.,** :  
:  
**Respondent.** :  
-----X

**Hon. Commissioner of Patents and Trademarks**  
**Washington, D.C. 20231**

**PETITION FOR CANCELLATION**

Houghton Mifflin Harcourt Publishing Company (“Petitioner”) is a corporation organized under the laws of the state of Massachusetts having its principal place of business at 222 Berkeley Street, Boston, Massachusetts 02116. Petitioner believes that it is and will continue to be damaged by Registration No. 4,030,323 issued on September 27, 2011 for SINGAPORE MATH in Class 16 and Registration No. 3,866,259 issued on October 26, 2010 for SINGAPOREMATH.COM in Class 16 (the “Registered Marks”) both in the name of SingaporeMath.com, Inc. (“Registrant”) and hereby petitions for cancellation of the same under

the provisions of 15 U.S.C. § 1064(3). As grounds for cancellation Petitioner asserts that:

1. Petitioner is a leading global education and learning company and the world's largest provider of educational materials for pre-K – 12 learning.

2. Petitioner is the distributor in the United States of a series of mathematics textbooks and workbooks for kindergarten through sixth grade entitled *Math in Focus: Singapore Math* (the "HMH Books") which is published by Marshall Cavendish Education Singapore.

3. The HMH Books follow the pedagogical framework of teaching mathematics that was developed by the Singapore Ministry of Education, and is known outside of Singapore as "Singapore Math."

4. Petitioner also offers for sale, sells and distributes related educational materials in connection with its HMH Books.

5. Petitioner has been distributing the HMH Books in the United States since at least as early as April 2009.

6. Upon information and belief, Registrant is a corporation organized under the laws of the state of Oregon with a principal place of business at 404 Beavercreek Road, #225, Oregon City, Oregon 97045.

7. Upon information and belief, Registrant is the distributor in the United States of a series of mathematics textbooks and workbooks for first through fifth grades entitled *Primary Mathematics* which are published by Marshall Cavendish Education Singapore.

8. Upon information and belief, Registrant's *Primary Mathematics* books also follow the "Singapore Math" curriculum.

### **First Basis for Cancellation - Genericness**

9. Upon information and belief, in or around 1980 the Singapore Ministry of Education developed a new mathematics curriculum for use in Singapore schools whereby students master core concepts and then move onto solving problems by applying that knowledge.

10. In the United States and countries other than Singapore the term “Singapore Math” refers to this mathematics teaching curriculum developed by the Singapore Ministry of Education.

11. The term “Singapore Math” is commonly and widely used by educational publishers, school systems, teachers, parents and students to identify the approach to and method of teaching mathematics known as “Singapore Math.” Attached as Exhibit 1 are examples of third parties’ uses of the term “Singapore Math.”

12. The term “Singapore Math” is generic in that the primary significance of the term to the relevant public is as the name of the mathematics teaching method that originated in Singapore.

13. Registrations for SINGAPORE MATH composite marks that issued earlier than the Registered Marks disclaim the term SINGAPORE MATH. Attached as Exhibit 2 are copies of Certificates of Registration for SINGAPORE MATH composite marks.

14. The Office Action and Final Office Action issued in the prosecution of the mark SINGAPORE MATH both asserted that the mark “appears to be generic in connection with the identified goods and, therefore, incapable of functioning as a source-identifier for applicant’s goods.”

15. In response to the Office Actions issued in the prosecution of the Registered Marks, Registrant claimed that the Registered Marks had acquired distinctiveness under 2(f) of the Trademark Act.

16. The first 2(f) claim that Registrant submitted for the mark SINGAPORE MATH was accepted by the U.S. Patent & Trademark Office and the application was approved for publication.

17. However, in the prosecution of the mark SINGAPOREMATH.COM, the U.S. Patent & Trademark Office rejected Registrant's initial 2(f) claim because "the mark is possibly generic that more evidence is needed."

18. After Registrant submitted additional evidence in support of its 2(f) claim for the mark SINGAPOREMATH.COM, the application was approved for publication.

19. Petitioner submits that the U.S. Patent & Trademark Office erred in accepting Registrant's 2(f) claims of acquired distinctiveness for the Registered Marks and approving the applications for publication because the marks were and are incapable of serving as a source-identifier for Registrant's goods.

20. As the Registered Marks are generic, they are, by definition, incapable of indicating a particular source of the goods. Thus, the Registered Marks cannot be registered as trademarks.

21. The registration of the Registered Marks has granted Registrant a monopoly over the use of the term "Singapore Math", since a competitor such as Petitioner cannot describe its goods as what they are.

22. Petitioner has a valid right to use the term “Singapore Math” in connection with its educational materials relating to the method of teaching mathematics that is based on the Singapore math curriculum known as “Singapore Math.”

**Second Basis for Cancellation – Fraud**

23. Upon information and belief, Registrant was aware of Petitioner and other third parties’ uses of the term “Singapore Math” in connection with math education materials prior to filing its trademark applications for the Registered Marks.

24. Upon information and belief, Registrant was aware that Petitioner’s and other third parties’ uses of the term “Singapore Math” in connection with math education materials were substantial.

25. Upon information and belief, Registrant was aware that Petitioner’s and other third parties’ uses of the term “Singapore Math” in connection with math education materials were non-infringing.

26. In support of its applications for the Registered Marks, Registrant filed with the U.S. Patent & Trademark Office Declarations of Distinctiveness under 2(f) of the Trademark Act which included Registrant’s declarations under oath, through its President, Jeffery Thomas, that Registrant has “substantially exclusively” used the marks SINGAPORE MATH and SINGAPOREMATH.COM.

27. Upon information and belief, these statements were false when they were made in that Registrant was aware of Petitioner’s and other third parties’ consequential non-infringing uses of the term “Singapore Math” in connection with educational materials.

28. Registrant has not enjoyed substantial and exclusive use of the term "Singapore Math" due to Petitioner's and other third parties' substantial non-infringing uses of the term in connection with educational materials.

29. Upon information and belief, Registrant knew that the statement was false at the time it was made and filed with the U.S. Patent & Trademark Office.

30. Upon information and belief, Registrant intentionally made this false statement with the intent to fraudulently induce the U.S. Patent & Trademark Office to act in reliance thereon by approving its applications for the Registered Marks for registration.

31. Registrant's acts constitute fraud on the U.S. Patent & Trademark Office and have wrongfully induced the U.S. Patent & Trademark Office to approve the Registered Marks, which action the U.S. Patent & Trademark Office would not have taken but for the fraudulent statements.

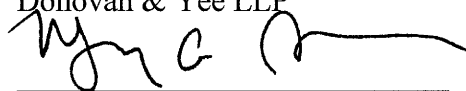
32. The registrations for the Registered Marks should therefore be cancelled.

By reason of the foregoing, Petitioner is and will continue to be damaged by Registrant's registrations of the Registered Marks.

WHEREFORE, Petitioner respectfully requests that this Cancellation be sustained and that the registrations by Registrant of the Registered Marks be cancelled.

Dated: New York, New York  
February 10, 2012

Respectfully submitted,  
Donovan & Yee LLP



Mary A. Donovan, Esq.  
Sarah B. Kickham, Esq.  
161 Avenue of the Americas, Suite 1201  
New York, NY 10013  
(212) 226-7700  
*Attorneys for Petitioner*



### **CERTIFICATE OF SERVICE**

I, Sarah B. Kickham, an attorney with Donovan & Yee LLP, attorneys for Petitioner Houghton Mifflin Harcourt Publishing Co., hereby affirm under the penalties of perjury, that on February 10, 2012, I caused a true and correct copy of the foregoing Petition for Cancellation to be served upon Registrant and Registrant's attorney of record via first class mail:

SingaporeMath.com, Inc.  
404 Beavercreek Road, #225  
Oregon City, Oregon 97045

David P. Cooper, Esq.  
Kolisch Hartwell PC  
200 Pacific Building  
520 SW Yamhill Street  
Portland, OR 97204

  
\_\_\_\_\_  
Sarah B. Kickham

# **EXHIBIT 1**



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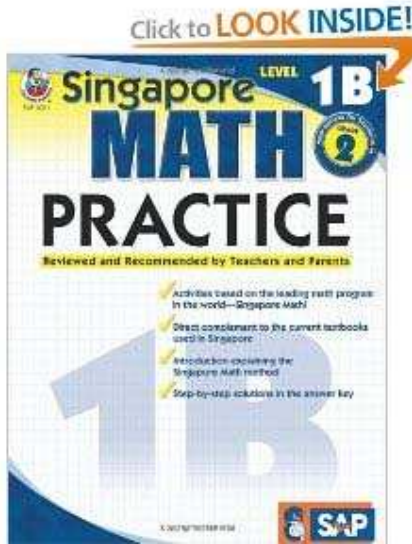
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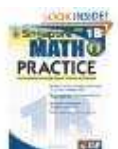
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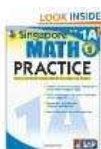
Publication Date: **June 1, 2009** | Age Level: **6 and up** | Grade Level: **1 and up** | Series: **Singapore Math**

Welcome to Singapore Math—the leading math program in the world! This workbook features math practice and second grade students based on the Singapore Math method. An introduction at the front of the book ex and its common problem types. Each unit has learning objects, which clearly define the skills to be learned in answer key with step-by-step worked out solutions that help students see how to work the problems. This bc students familiar with Singapore Math and for those who just need extra math practice

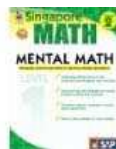
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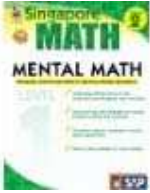


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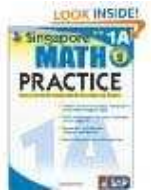
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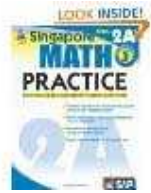
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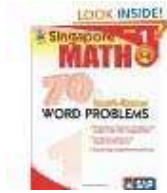
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## Product Details

**Reading level:** Ages 6 and up

**Paperback:** 128 pages

**Publisher:** Frank Schaffer; Workbook edition (June 1, 2009)

**Language:** English

**ISBN-10:** 0768240018

**ISBN-13:** 978-0768240016

**Product Dimensions:** 10.8 x 8.2 x 0.3 inches

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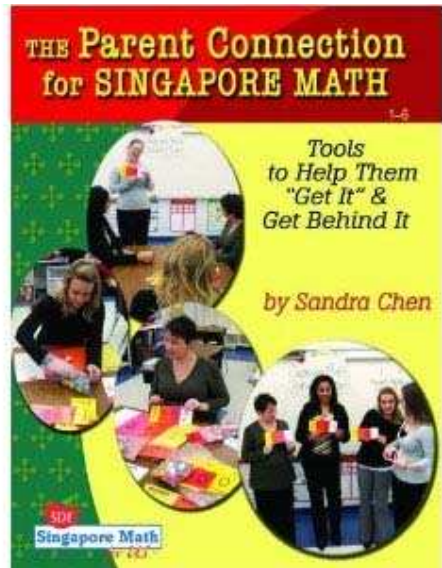
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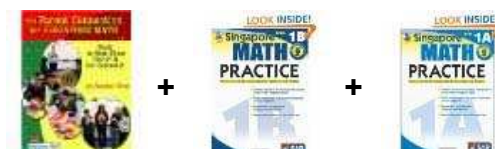
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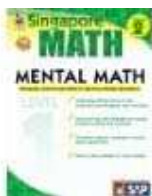
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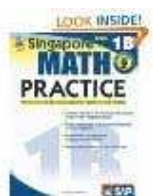
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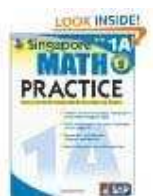
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## Product Details

**Paperback:** 128 pages

**Publisher:** Crystal Springs Books; 1st edition (April 29, 2008)

**Language:** English

**ISBN-10:** 1934026050

**ISBN-13:** 978-1934026052

**Product Dimensions:** 10.9 x 8.4 x 0.4 inches

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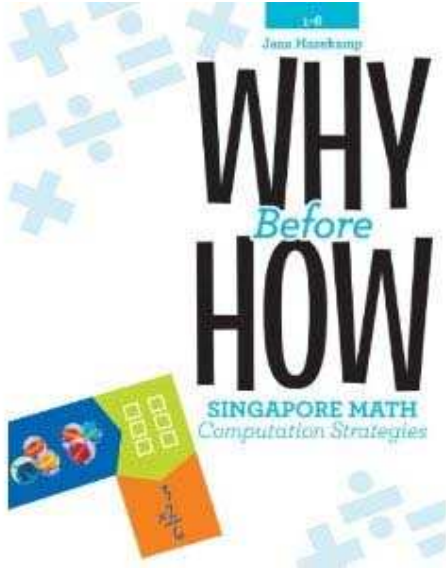
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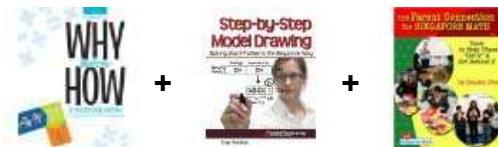
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## Book Description

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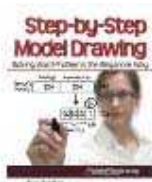
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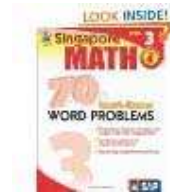
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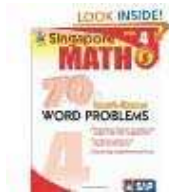
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## Product Details

**Paperback:** 122 pages

**Publisher:** Crystal Springs Books (April 7, 2011)

**Language:** English

**ISBN-10:** 1934026824

**ISBN-13:** 978-1934026823

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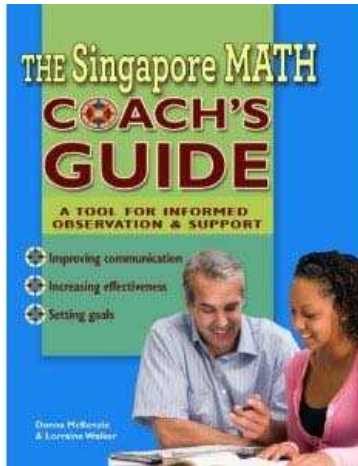
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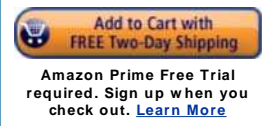
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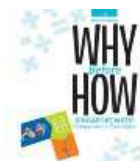


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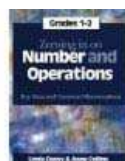
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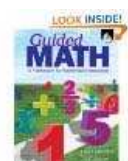
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# Singapore Math Method

From Wikipedia, the free encyclopedia  
(Redirected from Singapore math)

In the United States, **Singapore Math** is a teaching method based on the primary textbooks and syllabus from the national curriculum of Singapore. These textbooks have a consistent and strong emphasis on problem solving and model drawing, with a focus on in-depth understanding of the essential math skills recommended in the NCTM Curriculum Focal Points (National Council of Teachers of Mathematics),<sup>[1][2]</sup> the National Mathematics Advisory Panel,<sup>[3]</sup> and the proposed Common Core State Standards.<sup>[4]</sup>

Explanations of math concepts are exceptionally clear and simple (often just a few words in a cartoon balloon), so that students (Singapore is a cosmopolitan nation) can read it easily.<sup>[5]</sup> The method has become more popular since the release of scores from the Trends in International Mathematics and Science Study<sup>[6]</sup> in 2003 showed Singapore at the top of the world in 4th and 8th grade mathematics. This was the third study by the NCES, and the 2007 TIMSS was released in December 2008.

## Contents

- 1 History
- 2 Features
- 3 Israeli experience
- 4 Other issues and observations
- 5 References

## History

Prior to 1980, Singapore imported all of its mathematics textbooks from other nations. Beginning in 1980, however, Singapore began to take a new approach to mathematics instruction. Instead of importing its mathematics textbooks, the Curriculum Development Institute of Singapore (CDIS) was established. One charge of CDIS was to develop primary and secondary textbooks. At the same time, the Ministry of Education, the centralized education authority in the country, set new goals for mathematics education. These goals emphasized a focus on problem solving and on heuristic model drawing. The CDIS incorporated these goals into the textbooks, and in 1982 the first Singapore math program, Primary Mathematics 1-6, was published. In 1992, a second edition was made available. The second edition revisions included an even stronger focus on problem solving and on using model drawing as a strategy to problem solve.

The country continued to develop its mathematics program. Further revisions included:

- Creating a tighter content focus of the mathematics curricula following a study to review the scope and sequence in 1998
- Privatizing the production of the primary level mathematics textbooks in 2001, with the hope that collaboration among textbook publishers would lead to quality textbooks at more affordable prices
- Placing an even greater focus on developing mathematical concepts and fostering mathematical problem solving in 2006 revisions

Following Singapore's curricular and instructional initiatives, dramatic improvements in math proficiency for Singapore students on international assessments were seen. In 1984, Singapore's students were placed 16th out of 26 nations in the Second International Science Study (SISS). By 1995, the Trends in International Mathematics and Science Study (TIMSS) ranked Singapore's students first among participating nations. The 2007 results also showed Singapore as a top-performing nation.

## Features

1. Each semester-level Singapore Math textbook builds upon preceding levels, and assumes that what was taught need not be taught again. Consequently, it is necessary to assign Singapore Math students to a textbook that matches what they are ready to learn next. (Placement exams are available online.<sup>[7]</sup>) By contrast, the typical US classroom offers the same grade-level math instruction to all students, reviews previously taught math skills before teaching new skills, and gives more emphasis to topics that don't build on previously taught math skills (bar graphs, geometric shapes, measurement units).
2. A great deal of instructional time is saved by focusing on essential math skills, and by not reteaching what has been taught before. In fact, some teachers report that Singapore Math feels slower paced than what they're used to. However, the result is that students master essential math skills at a more rapid pace. By the end of sixth grade, Singapore Math students have mastered multiplication and division of fractions, and they are comfortable doing difficult multi-step word problems. With that foundation, they are well prepared to complete Algebra 1 in middle school.<sup>[8]</sup>
3. Singapore Math students begin solving simple multi-step word problems in third grade, using a technique called the "bar model" method. Later grades apply this same method to more and more difficult problems, so that by sixth grade they are solving very difficult problems like this: "Lauren spent 20 percent of her money on a dress. She spent  $\frac{2}{5}$  of the remainder on a book. She had \$72 left. How much money did she have at first?" Consequently, when a school first adopts Singapore Math, the upper elementary grades will need to catch up on what they missed. This can be done by going through the problem-solving chapters in the preceding grade levels, or by using a Singapore Math Model Method supplemental textbook.<sup>[9]</sup>
4. The principle of teaching mathematical concepts from concrete through pictorial to abstract. For example, introduction of abstract decimal fractions (in Grade 4) is preceded by their pictorial model of centimeters and millimeters on a metric ruler, but even earlier (in Grades 2 and 3) addition and subtraction of decimals is studied in the concrete form of dollars and cents.<sup>[10]</sup>
5. Systematic use of word problems as the way of building the semantics of mathematical operations. Simply put, students learn when to add and when to subtract, relying on the meaning of the situation (rather than "clue-words," as often done in the US schools). Formulations are free of any redundancies, and challenge students' understanding of mathematics only. This is different from many U.S. curricula, where word problems are to show "applications" of math and are spiced with immaterial details intended to obscure the mathematical content of the problem.<sup>[citation needed]</sup>
6. The need for repetitive drill is minimized by clever sequencing of the topics. For instance, the introduction of multiplication facts by 2, 3, 4 and 5 in the middle of Grade 2 is followed by a seemingly unrelated section on reading statistical data from a graph. In fact, the latter task reinforces the learning of multiplication facts when the scale begins to vary from 2 to 5 objects per graphical unit.
7. The use of bar-models in teaching problem solving (a form of pre-algebra). This device is as old as Book V of Euclid's Elements, written in the 4th century BC, and consists simply in representing (mentally or graphically) arithmetical quantities by line segments. In SM books, such line segments are regularly used to show and teach one's thinking process in solving an arithmetical problem. For aesthetic reasons, the segments are typeset as colorful "bars" of a fixed width (hence *bar-models*). In this form, they fascinated many educators as being a miraculous "novel method" (hence Singapore Math *Method*) of problem solving.<sup>[11]</sup> While mathematicians endorsing Singapore Math see the use of bar-models at best as one of many attractive features of the curriculum,<sup>[12]</sup> the focus of the U.S. media and of education experts has

been almost entirely on this feature.<sup>[13]</sup>

8. The hallmark of the curriculum is the careful guidance of students, done in a child-friendly pictorial language, not only to technical mastery, but to complete understanding of all the "whys" (see an example ([http://math.berkeley.edu/~giventh/TDS/Math\\_Newsletter.pdf](http://math.berkeley.edu/~giventh/TDS/Math_Newsletter.pdf)) ). This differs from typical U.S. curricula, which either aim for dogmatic memorization of "rules," or expect students to reconstruct mathematical ideas from hands-on activities without much guidance (see Math Wars).

## Israeli experience

Starting in 2002, the Singapore math textbooks have been translated into Hebrew, and implemented in schools. The translations are now approved from grade 1 to grade 6. The books are used in about 150 schools (8% of the Hebrew speaking schools in Israel). National tests have shown success.<sup>[citation needed]</sup> Ten schools participated in the tests, and their average was about 8 points above the national average. There are complaints about the books as from 4th grade , concerning difficulty and "jumpiness", lacking in systematic structuring of the material. On the other hand, middle schools report that the students who studied with the books arrive better prepared.<sup>[citation needed]</sup>

## Other issues and observations

**Alignment with state standards.** Singapore Math emphasizes the essential math skills recommended in the NCTM Curriculum Focal Points (National Council of Teachers of Mathematics),<sup>[14][15]</sup> the National Mathematics Advisory Panel,<sup>[16]</sup> and the proposed Common Core State Standards.<sup>[17]</sup> The US-adapted versions also include extra math topics that are currently popular in state math standards, but the textbooks try to use even these topics as a vehicle for teaching essential/core/focal math skills. By contrast, American textbooks often have state-specific versions or supplements that cover all of that state's objectives, and they typically treat extra math topics as the primary focus of the chapters devoted to those topics.

**Probability, Statistics, and Data Analysis.** American textbooks and state standards currently give this much more emphasis than Singapore Math, the NCTM Curriculum Focal Points, the National Math Panel, and the proposed national Core Curriculum. The current American emphasis is on topics that don't rely on prior math skills and are not developed further (defining probability, constructing tables and charts) rather than the core building blocks of statistical analysis (probability distributions, margin of error, hypothesis testing). Some analysts believe that even these non-core statistics topics offer real-world mathematical applications and 21st century skills,<sup>[18]</sup> but the emerging consensus is that they should be almost entirely eliminated from the primary curriculum. Interim results of a comparative study<sup>[19]</sup> of Singapore and US math education systems were released that show that Singapore students (who do not have a formal statistics strand in their curriculum) do better in the TIMSS tests involving statistics questions than do US students (who study statistics in each grade) in similar tests.

**Teacher training.** Teacher's Guides are available for Singapore Math. Experienced trainers are also available, although schools may feel that teaching and learning from these books is so simple that teacher training is not needed.

**Expense trade-offs.** Paperback Singapore Math textbooks are less durable but much cheaper than standard hardback textbooks. Also, unlike standard textbooks for which teachers create their own worksheets or the student copies a problem onto his or her own paper, Singapore Math textbooks have companion workbooks which are consumable (as is the entire kindergarten program). Potential adopters should compare the cost, quality, and convenience of consumable workbooks to the cost, quality, and burden of teacher-created

worksheets and student-copied problems.

**Cultural differences.**<sup>[*citation needed*]</sup> Cultural differences between the US and Singapore, and among diverse cultures within the US, may be relevant. Cultural differences do have large impacts on student learning; however, that does not imply that students from different cultures respond differently to the distinctive features of Singapore Math – e.g., the focus on essential math skills, exceptionally simple explanations, and the bar model method of solving multi-step word problems.

## References

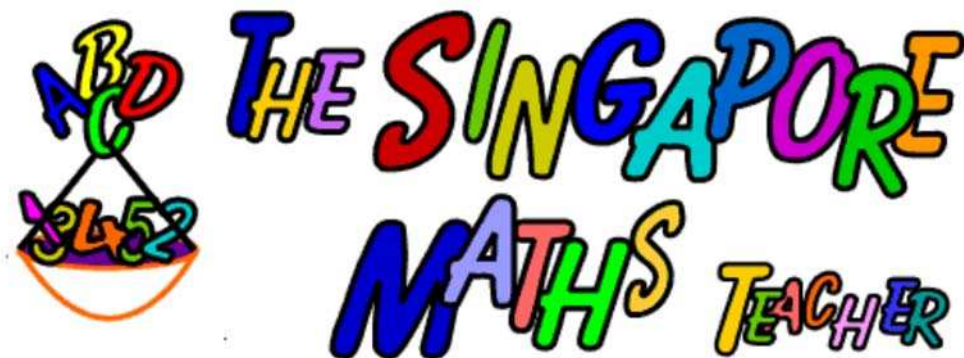
### Notes

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- <sup>2</sup> ^ Edinformatics, “NCTM Focal Points and Singapore Math Syllabus” ([http://www.edinformatics.com/math\\_science/nctm\\_singapore\\_math.htm](http://www.edinformatics.com/math_science/nctm_singapore_math.htm))
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- <sup>5</sup> ^ John Hoven and Barry Garelick, “Singapore Math: Simple or Complex?” Educational Leadership 65:3 (November 2007) pp. 38-21 (<http://www.utahsmathfuture.com/usj.pdf>)
- <sup>6</sup> ^ TIMSS (<http://nces.ed.gov/timss/>)
- <sup>7</sup> ^ Singapore Math placement exams ([http://www.singaporemath.com/Placement\\_s/12.htm](http://www.singaporemath.com/Placement_s/12.htm))
- <sup>8</sup> ^ John Hoven and Barry Garelick, “Singapore Math: Simple or Complex?” Educational Leadership 65:3 (November 2007) pp. 38-21 (<http://www.utahsmathfuture.com/usj.pdf>)
- <sup>9</sup> ^ The Singapore Model Method for Learning Mathematics (<http://www.singaporemath.com/ProductDetails.asp?ProductCode=SMMLM&Show=TechSpecs>)
- <sup>10</sup> ^ Miracle Math by Barry Garelick (<http://educationnext.org/miracle-math/>)
- <sup>11</sup> ^ An A-Maze-ing Approach to Math by Barry Garelick (<http://educationnext.org/anamazeingapproachtomath/>)
- <sup>12</sup> ^ Singapore vs. California Math Texts ("A Selfish Request") (<http://math.berkeley.edu/~giventh/TDS/m5.pdf>)
- <sup>13</sup> ^ For example: NPR Singapore Math Method (<http://www.npr.org/templates/story/story.php?storyId=4233324>) . Science Friday, 17 Dec 2004.
- <sup>14</sup> ^ National Council of Teachers of Mathematics. Curriculum Focal Points for Prekindergarten Through Grade 8 Mathematics: A Quest for Coherence. (2006) ([http://www.nctmmedia.org/cfp/focal\\_points\\_by\\_grade.pdf](http://www.nctmmedia.org/cfp/focal_points_by_grade.pdf))
- <sup>15</sup> ^ Edinformatics, “NCTM Focal Points and Singapore Math Syllabus” ([http://www.edinformatics.com/math\\_science/nctm\\_singapore\\_math.htm](http://www.edinformatics.com/math_science/nctm_singapore_math.htm))
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- <sup>17</sup> ^ Common Core State Standards Initiative. Common Core State Standards for Mathematics (2010). ([http://www.corestandards.org/assets/CCSSI\\_Math%20Standards.pdf](http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf))
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- <sup>19</sup> ^ What the United States can learn from Singapore's world class mathematics system. Report of the American Institute for research, 2005, 192 pages. ([http://www.air.org/files/Singapore\\_Report\\_Bookmark\\_Version1.pdf](http://www.air.org/files/Singapore_Report_Bookmark_Version1.pdf))

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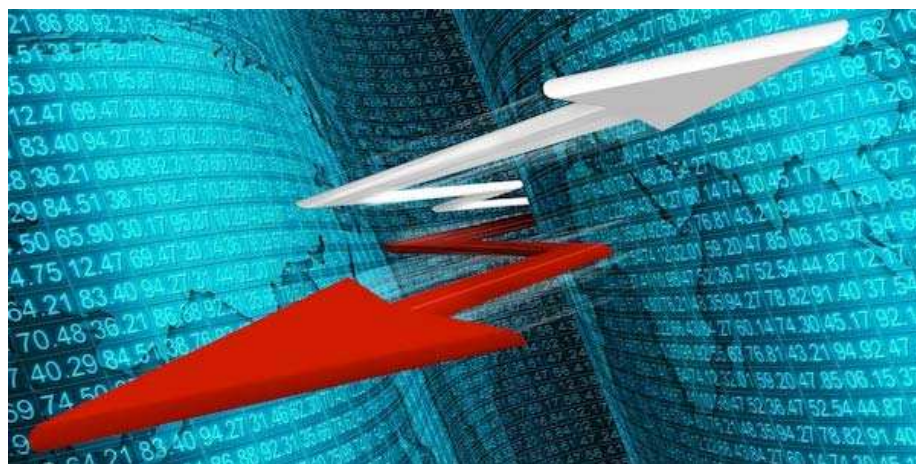
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## LEARNING, INNOVATION & TECH

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### Singapore Math Demystified!

November 26, 2011 10:21 AM



#### Singapore Math: Can It Help Solve Our Country's Math-phobia?

*Editor's Note: Due to the interest expressed over our previous posts about [Singapore Math](#) and the non-Singaporean-specific classic, "Why Our Kids Don't Get Math" [here](#), The Daily Riff is featuring an exclusive original four-part series by Bill Jackson, Math Helping Teacher, Scarsdale, NY Public Schools, one of the highest performing districts in the country.*

*We asked Bill to share his truly incredible (which is both humbling and exhilarating) global journey into math education from Singapore to Japan and back again to the United States in an original series for The Daily Riff. His posts are becoming classics in the Singapore Math lexicon. - C.J. Westerberg*

#### How I Became Interested In [Singapore Math](#) Part 1

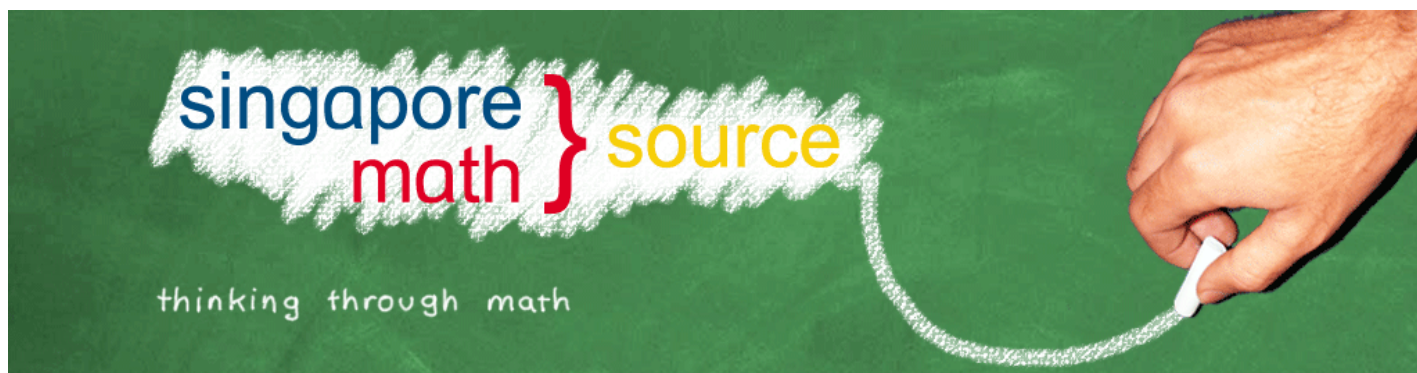
By Bill Jackson

In 1997, I attended a series of workshops on the Third International Mathematics and Science Study (TIMSS). That study compared math achievement in over 40 countries in grades 4, 8 and 12. Singapore and a handful of East Asian countries performed extremely well, much better than the United States, which had a mediocre performance. I was an 8th grade teacher at Public School No. 2 in Paterson, New Jersey at the time.

At the workshop we watched videotapes of mathematics classrooms from Japan, Germany and the U.S. The U.S. lesson looked very familiar. The teacher showed his students how to do a procedure and then they practiced while the teacher helped individual students. The Japanese lesson looked very different, however. The teacher began the lesson by posing a rich problem. Then the students solved the problem based on what they had learned previously and shared different solution methods. Important mathematical points of the lesson were brought out through class discussion of the various methods. The students looked very engaged and they even clapped for each other. After watching the video, I felt that my students were getting shortchanged and I became determined to learn how to teach like that Japanese teacher!

Making this change, however, would not be easy. The lessons in the heavy 600+ page textbook we were using did not begin with problem solving. In fact, the **word problems were the last thing on the page and often times we were so busy practicing procedures that we didn't even get to them. I decided to teach my lessons backwards** by posing one of the word problems at the bottom of the page and then asking the students to solve it, share and discuss their methods. I explained to my students what I was trying to accomplish and even showed them the TIMSS videotapes. I was amazed at how quickly they adjusted to the new methodology and how engaged they were. **They were actually starting to like math.** They

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## About Singapore Math

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“It is unreasonable to assume that Singaporean students have mathematical abilities inherently superior to those of U.S. students, there must be something about the system that Singapore has developed to teach mathematics that is better than the system we use in the United States.”

[AIR Report: What the United States Can Learn From Singapore's World-Class Mathematics System \(and what Singapore can learn from the United States\): An Exploratory Study.](#)

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*An approach to developing in-depth mathematical understanding through:*

- Concept building activities
- Unique mental math strategies
- Problem solving methods
- Focus on mastery

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- [1](#) **barbara Lilley** // Oct 7, 2010 at 8:42 pm

Looking for a teacher workshop in Harrisburg, PA. It's mentioned on the site summary, but can't find it on the site itself.

- [2](#) **Cassy** // Oct 11, 2010 at 9:53 am

Greetings Barbara, As it turns out I was in Harrisburg, not once, but twice last spring! Once during your "Stormageddon" then back again in March. [Here's a list of dates scheduled for 2011](#)

- [3](#) **Kris Murphy** // Jan 20, 2011 at 6:59 am

Hi Cassy,

I love your website! It has lots of helpful resources and valuable information.

Singapore math is fun isn't it? I love the bar diagram approach to solving math problems.

I was educated in Singapore and later Canada. A few years back, I came to know that Singapore math was gaining popularity in the world. Since I had firsthand knowledge of the education system in Singapore, having been educated there, I created a free educational website with thousands of Singapore math problems. Knowing that children are easily bored, I infused my math problems with zany humor and attractive 3D clip art.

Many kids hate math because they don't understand it. However, math is not all that difficult as long as educators take the right teaching approach. Any child can learn math with the proper guidance. It is my hope that children all over the world will grow up to see the beauty of math. From the smallest electron to the awe-inspiringly vast universe: they can all be described by elegant mathematical formulas.

Here is a page from my free math website:

[Challenging Singapore Math Word Problems: Elementary School Math](#)

Cassy, you are doing a wonderful job of spreading the joy of math to the world!

Best wishes,  
Kris Murphy

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Posted by [swhited](#) on Friday, December 30th, 2011 at 8:32 am

### **Singapore Math: Ending the Spiral of Non-Mastery**

Singapore is a world leader in math education, but that wasn't always the case. Starting in 1980, Singapore began to develop its own curriculum instead of importing textbooks from other countries with dramatic results. Singapore's students skyrocketed from 16th of 26th in the Second International Science Study (SISS) rankings in 1984 to 1st in 1995. On the [Trends in International Mathematics and Science Study](#) (TIMSS) undertaken in over 40 countries, Singapore has ranked 1st in three of the four administrations. The US has only ranked in the top 10 countries for math once.

The curriculum is not a secret, and many US schools have implemented the country's math and science programs since [Singapore Math Inc](#) brought it to the US in 1989. STC School Harlem Academy implemented [Singapore Math](#) in 2008, the first school in Manhattan to do so. Head of School Vinny Dotoli said he saw [“double-digit growth in students' quantitative reasoning scores in a single year.”](#)

The curriculum aligns with US standards, but there are major differences in the delivery compared to standard American teaching methods. Vinny Dotoli clued me in on the contrasts. Traditionally about 30 math concepts can be covered in one year using a spiral approach that introduces concepts and revisits them with added complexity. This method “does not expect mastery,” leaving some students bored when a concept is revisited, and moving on before it's fully grasped by other students. If a concept is not fully internalized, it's

understandably difficult for a student (or his teacher) to pick up exactly where his progress last stood, also hindering teacher accountability for student performance.

In contrast, **Singapore Math** covers 10-14 concepts a year, stays with each 2-3 weeks, and expects mastery before introducing a new lesson.

While he says “teachers like it,” Vinny advises that **Singapore Math** teachers be equipped with a “strong math core” relevant to their instruction, because they “can’t teach **[Singapore Math]** on autopilot.” Harlem Academy’s teachers attend a minimum week long summer institute in preparation for the year, because they must be engaged and engaging. Should we expect anything less of teachers?

Harlem Academy has seen more than statistically significant differences in student performance after switching to **Singapore Math**. Anecdotally, Vinny reports “more positive engagement among students. Traditionally,” he explains, “kids who do well in math like math, and kids who struggle don’t like it.” With Singapore Math, all students are more interested. Because it’s frequently reported that boys perform better than girls in math, he’s seen the surprise on a visitor’s face when a female student names math as her favorite subject and the subsequent confusion of the student when her answer is greeted with exclamations of amazement.

Visit the [Singapore Math website](#) for more.

Tags: [Classroom Resource](#), [Effective Practice](#), [Harlem Academy](#), [Singapore Math](#), [SISS](#), [spiral approach](#), [teachers](#), [TIMSS](#)

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## about us

The Pi Project offers training to schools and teachers adopting [Singapore Math](#).

Now approved by the California Board of Education, the **Primary Mathematics** textbook series from Singapore is the highly acclaimed math curriculum from the country that consistently ranks first on international math testing.

Read the Boston College news article about TIMSS, Trends in International Mathematics and Science Study: [Study Rates Singapore Best In Math, Science](#)

The [Singapore Math](#) curriculum is concept-based, with a progression from visual to pictorial to abstract that ends with mastery. It is not "New Math" – it is math the way it should be taught; math the way mathematicians understand it, math the way high school teachers would teach it if they taught young children. It is conceptual, not algorithmic; visual not rote, and it is fun. Fun to teach and fun to learn, since it is based on understanding, not memorization.

Because it is logical and conceptual, it works with remedial students, with gifted students, and is well supported with auxiliary workbooks, review books and software. Students at Keys School in Palo Alto, which adopted Singapore Math 3 years ago, are showing increased testing scores, increased motivation, and greater readiness for algebra. 8th graders often comment that algebra is easy – it's "just arithmetic with letters instead of numbers."

## instructors

**Corrinne Khoo-Lieu** was trained as a Math teacher in Singapore. She moved to the Bay Area in 2001 and used the Singapore Math curriculum to teach homeschoolers and students struggling with math. The results were quickly apparent with students (and parents) reporting improved understanding and enjoyment in doing math. In 2005, Corrinne was appointed as an external consultant and teacher trainer to Keys School when they made the decision to adopt Singapore Math. She worked closely with the teachers and students and ensured a seamless transition to the Singapore Math program.

**Kathleen Jalapour**, a veteran Math teacher with 25 years of experience, was instrumental in spearheading the adoption of Singapore Math at Keys School in Palo Alto, California in 2004. The program was and continues to be a resounding success. She is in her third year of teaching Singapore Math to grades 6 and 7 and has made presentations to teachers on the merits of the program. Kathleen and Corrinne believe Singapore Math can transform the landscape of how math is taught and learned here in the USA.

**"I have tried to do a problem without a model and it took me twenty extra minutes than when I use a model."**  
- Matthew, Keys School 5th grader

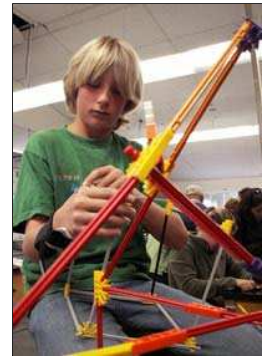
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# **EXHIBIT 2**

**Int. Cl.: 16**

**Prior U.S. Cls.: 2, 5, 22, 23, 29, 37, 38 and 50**

**Reg. No. 3,533,296**

**United States Patent and Trademark Office**

**Registered Nov. 18, 2008**

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FIELD OF PRIMARY MATH INSTRUCTION, IN  
CLASS 16 (U.S. CLS. 2, 5, 22, 23, 29, 37, 38 AND 50).

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SER. NO. 77-311,260, FILED 10-23-2007.

MARIA-VICTORIA SUAREZ, EXAMINING ATTOR-  
NEY

**Int. Cl.: 41**

**Prior U.S. Cls.: 100, 101 and 107**

**Reg. No. 3,578,621**

**United States Patent and Trademark Office**

**Registered Feb. 24, 2009**

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